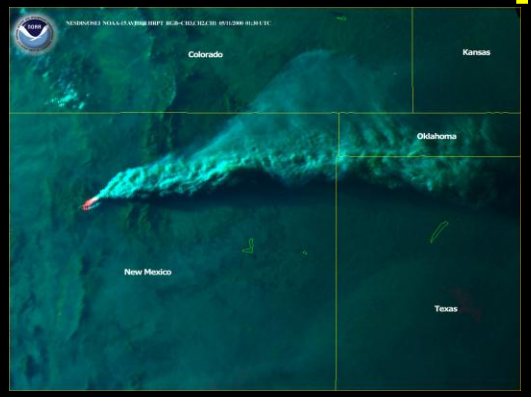
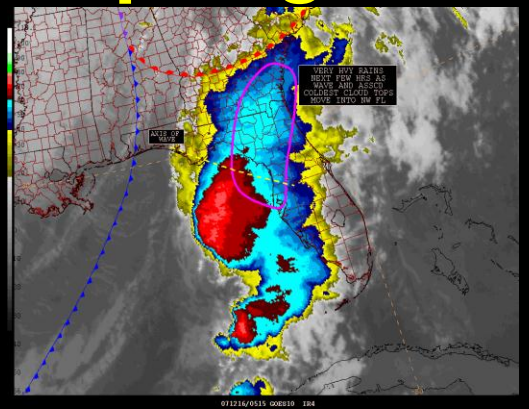
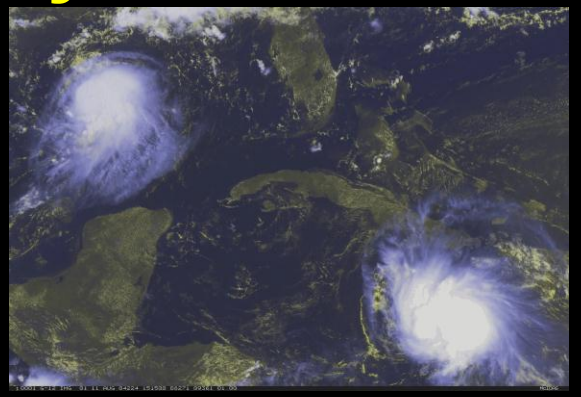
Satellite Analysis Branch GOES-R Proving Ground Testbed.

Camp Springs, Maryland







GOES-R Proving Ground Workshop

Boulder, Colorado

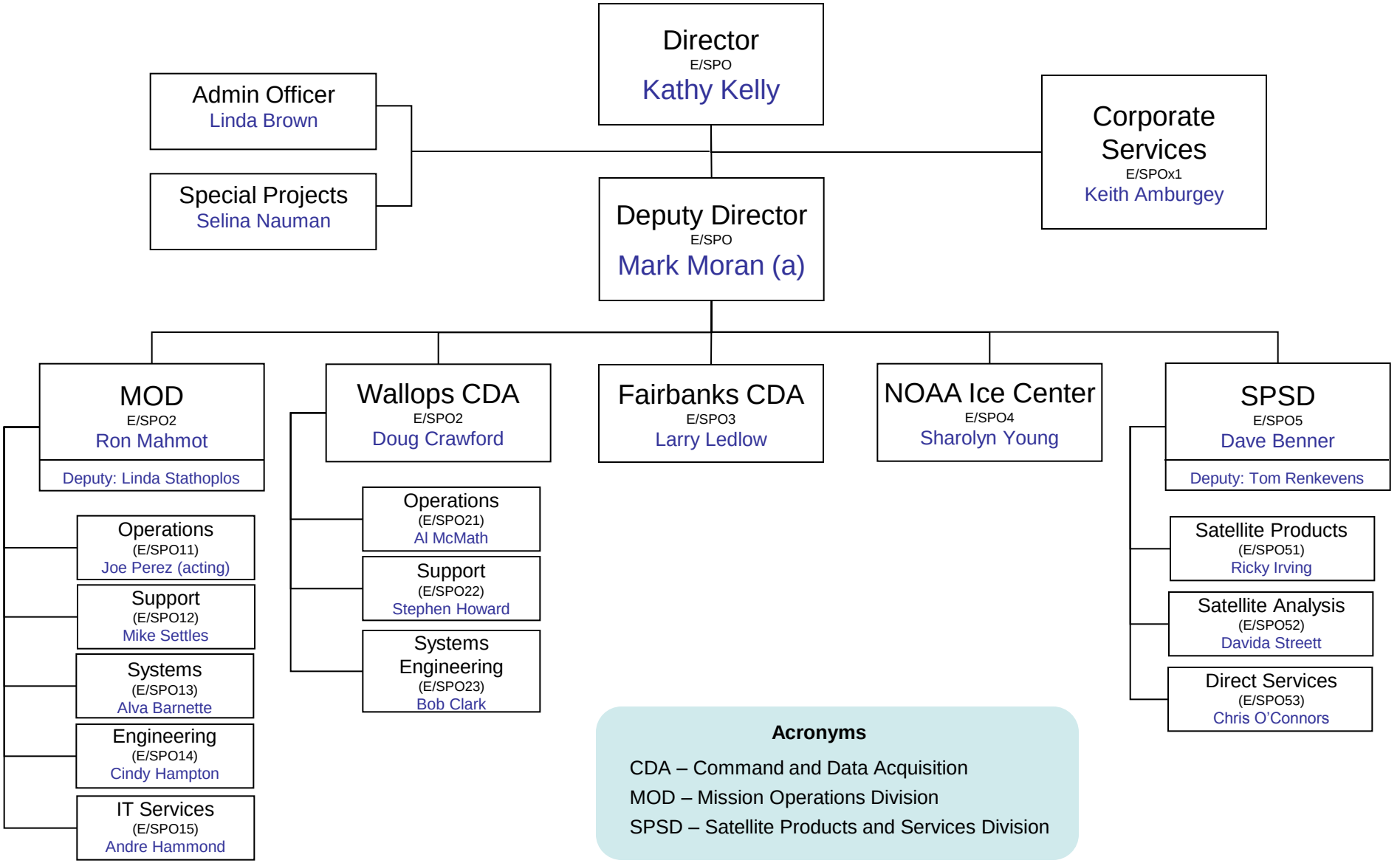
May 17-19, 2011

Presented by Tom Renkevens
Deputy Division Chief – Satellite Products and Services Division
Content by Jamie Kibler – Satellite Analysis Branch

Outline of the Presentation

- SAB Missions Statement
- SAB GOES-R Proving Ground Plan
- SAB Products
- The Volcanic Ash Program
- The Smoke, Fire and Air Quality Program
- The Precipitation Program
- Conclusion and Final Thoughts

Office of Satellite and Product Operations (OSPO)



Satellite Analysis Branch Mission Statement

The Satellite Analysis Branch serves as the operational focal point for real-time imagery products and multi-disciplinary environmental analyses within NESDIS. The Branch's primary mission is to use cutting edge satellite analysis techniques to support disaster mitigation and warning services for U.S. Federal agencies and the international community.

Environmental analyses are provided to NWS Warning & Forecast Offices, NCEP Centers, and to oceanographic and other environmental users of NESDIS satellite products.

The Branch uses satellite imagery integrated with non-satellite data to analyze fire and smoke, tropical storm, volcanic ash, heavy precipitation, and oil spill, distributing products to a diverse customer base.

SAB GOES-R Proving Ground Plan and Timeline

- Formalized list of what products and imagery Satellite Analysis Branch (SAB) analyst would like to see for testing and planning purposes. - Completed
- Joint GOES-R proposals were written with the Ocean Prediction Center (OPC) and the Hydrometeorlogical Prediction Center (HPC) for testing and planning purposes. Separate SAB proposals were written for testing and planning purposes for unique programs.
  - Completed
- GOES-R representative selection - Completed
- GOES-R representative to ingest GOES-R simulated imagery and products in multiple formats for viewing and testing purposes. – Starting early June 2011
- GOES-R representative will provide feedback to SAB satellite analyst on requested imagery and products. - To be determined
- SAB satellite analyst will do their own testing and provide feedback to GOES-R representative. – To be determined
- GOES-R representative will provide feedback to researchers and management for possible improvements/changes in GOES-R simulated imagery and products – To be determined

SAB Volcanic Ash Program

- The volcanic ash monitoring program at the Satellite Analysis Branch became official in 1987 although volcano monitoring began in the 1970s for the entire world.

- The Washington VAAC was established in 1997. The United States, in agreement with the International Civil Aviation Organization (ICAO), has designated the National Environmental Satellite Data and Information Services (NESDIS), Satellite Analysis Branch (SAB), and the National Weather Service (NWS) National Center for Environmental Prediction (NCEP) as the regional Washington Volcanic Ash Advisory Center (VAAC).

http://www.ssd.noaa.gov/VAAC/

GOES-R Simulated Products and Imagery for Testing

Product	Developer	In Ops
•Volcanic Ash: Detection and Height	(Mike Pavalonis) -	TBD
•SO2 detection	(Mike Pavalonis) -	TBD
•Low Cloud and Fog	(Mike Pavalonis) -	TBD

SAB Volcanic Ash Program

- Washington VAAC area of responsibility includes the continental US, southward through Central America, the Caribbean, to 10S in South America and the US controlled oceanic Flight Information Region (FIR).
- Washington is 1 of 9 VAACs that cover the globe. Other VAAC's include Anchorage, Buenos Aires, Darwin, London, Montreal, Tokyo, Toulouse and the Wellington.
- Monitoring volcano's 24 hours a day 365 days a year

http://www.ssd.noaa.gov/VAAC/

SAB Volcanic Ash Products

- **Volcanic Ash Advisory (VAA) which contains satellite information, reports of volcanic ash and a possible ash forecast.**

- **Volcanic Ash Graphic (VAG) – A graphic depiction of ash over an 18 hour period showing extent, movement and size. Graphic is only provided when ash is seen in satellite imagery.**

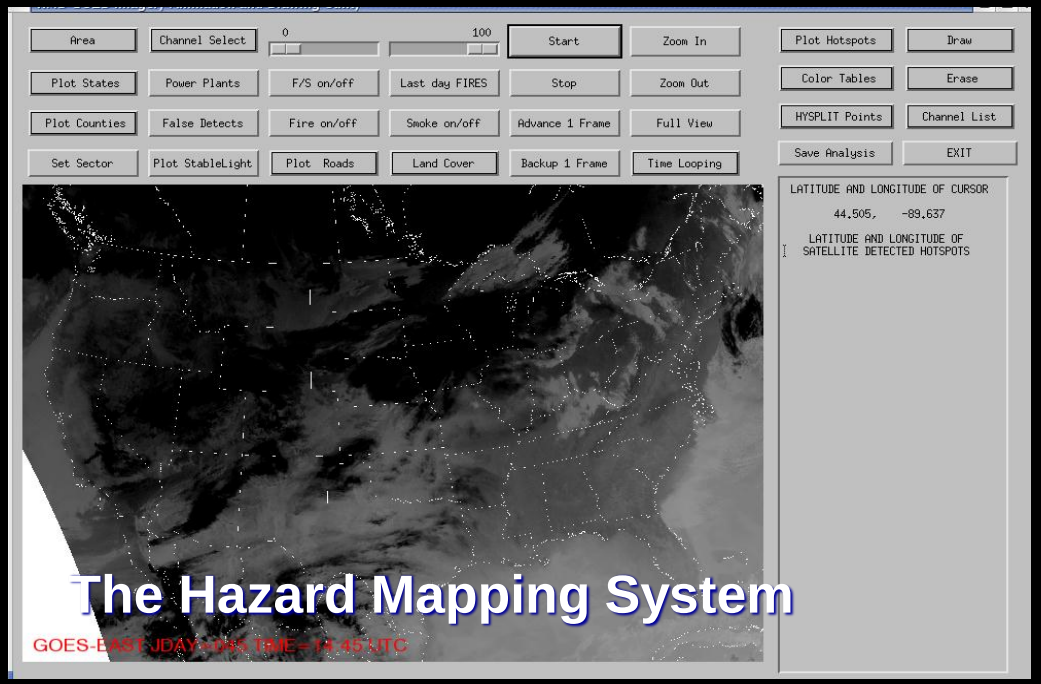
- **Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model: We provide volcanic ash parameters and data for the HYSPLIT model showing ash dispersion over a 48 hour period. HYSPLIT runs are usually needed with multiple plumes, high ash heights or ash expected to last beyond +12 hours.**

http://www.ssd.noaa.gov/VAAC/

SAB Smoke, Fire and Air Quality Program

In 1998 NOAA/NESDIS/SPSD/SAB began a fire and smoke analysis as smoke from Mexico began moving into the southern US and affecting health, transportation and other forms of industry. The analysis at the time was done in the format of individual sectors.

In July 2002 the fire and smoke analysis began on the Hazard Mapping System (HMS) for the continental US and eventually Alaska, Hawaii, Canada and Mexico/Central America.

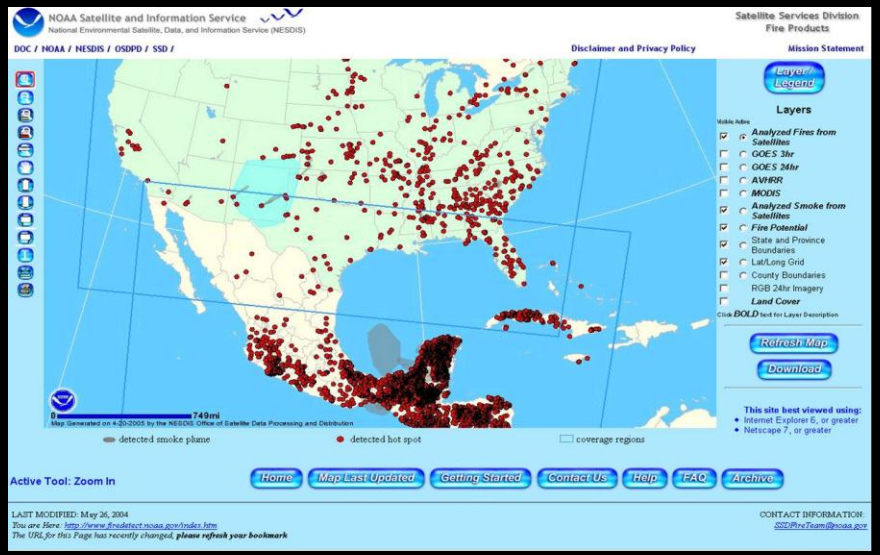


GOES-R Simulated Products and Imagery for Testing

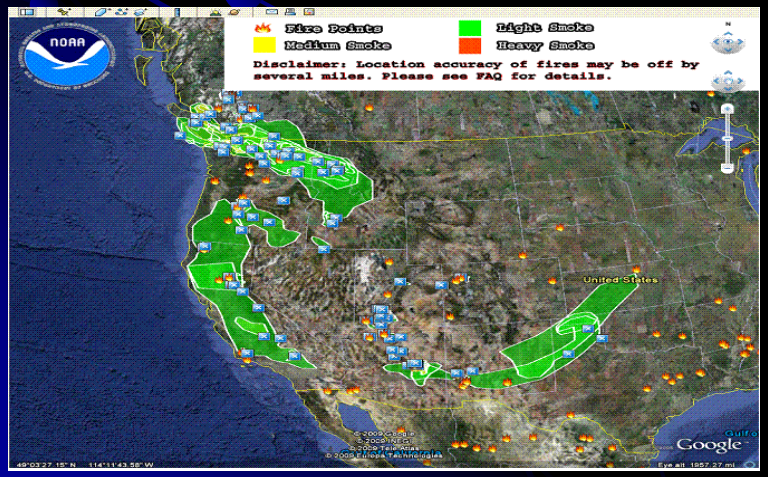
Product	Developer	In Ops
•Aerosol Detection	(Shobha Kondraguntas)	TBD
•Fire and Hot Spot Characterization	(Chris Schmidt)	TBD
•Aerosol Optical Depth	(Shobha Kondraguntas)	TBD
•Vegetation Index	(Peter Romanov)	TBD

Smoke, Fire and Air Quality Products

http://www.firedetect.noaa.gov/viewer.htm



http://www.ssd.noaa.gov/PS/FIRE/hms.html



http://www.ssd.noaa.gov/PS/FIRE/kml.html

SAB Precipitation Program

24/7/365 monitoring of precipitation with emphasis on satellite analysis, short term trends and rainfall estimates

Supporting NWS WFO/RFCs

Priorities

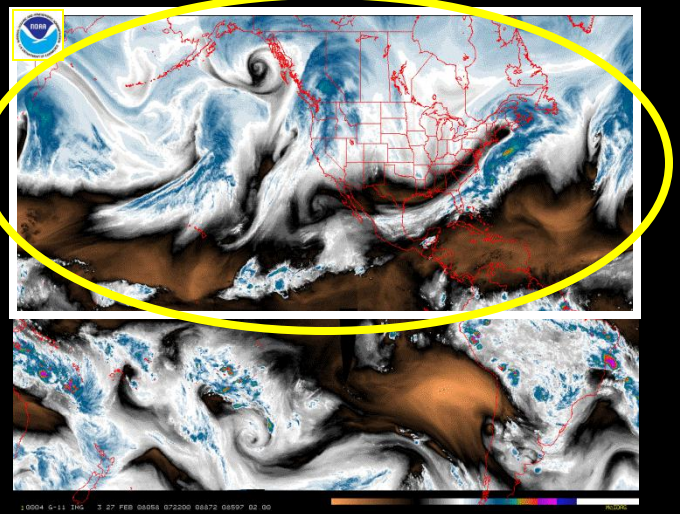
- **heavy rainfall / flash flooding**
- **moderate to heavy winter precipitation**
  - West Coast winter storms
  - Great Lake snows

Satellite (SPENES) discussion messages

graphical analysis

12-planet chat messages

satellite rainfall estimates



Precipitation Product available on AWIPS – SPENES is the AWIPS ID and the WMO header for the message is TXUS20 KNES

http://www.ssd.noaa.gov/PS/PCPN/

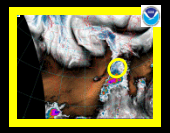
SAB Precipitation Program

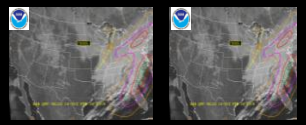
24/7/365 monitoring of precipitation with emphasis on satellite analysis, short term trends and rainfall estimates

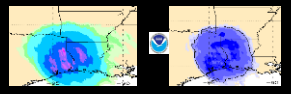
Supporting NWS NCEP HPC

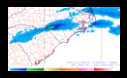
Priorities

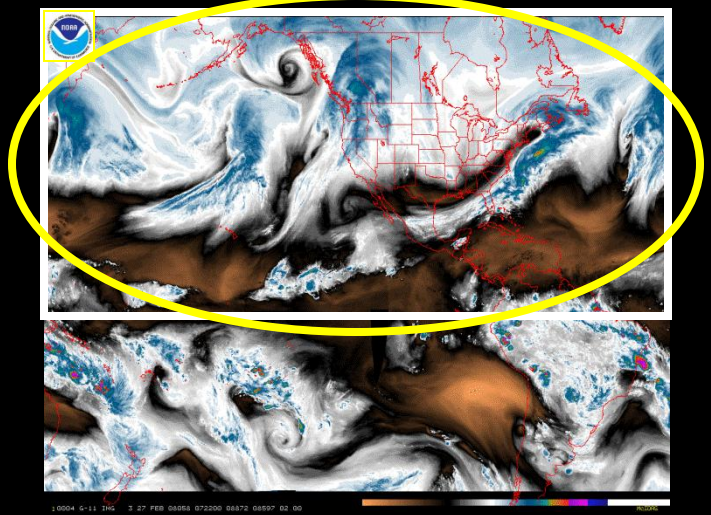
- excessive rainfall area
- 0-6 hr rainfall guidance
- precipitation trends
- satellite tropical rainfall
- satellite rainfall estimates











http://www.ssd.noaa.gov/PS/PCPN/

SAB Precipitation Program

GOES-R Simulated Products and Imagery for Testing

Product	Developer	In Ops
Cloud/Moisture Imagery	(Tim Schmidt and Dan Lindsey)	June 2011
Derived Motion Winds	(Jaime Daniels)	October 2011
RGB Air Mass	(John Knaff/Mark DeMaria)	August 2011
Rainfall Rate/QPE	(Bob Kuligowski)	September 2011
Derived Stability Indices	(Tim Schmidt)	September 2011
Lightning Detection	(Scott Rudloski)	July 2011
Convective Initiation	(John Walker)	July 2011
Enhance V / Overshooting Top Detection	(Kris Bedka)	June 2011
CT Phase, Height, Temperature	(Andy Heidinger)	September 2011
Rainfall Potential	(Bob Kuligowski)	TBD
Probability of Rainfall	(Bob Kuligowski)	TBD
Cloud Liquid Water	(Andy Heidinger and Andi Walter)	TBD

GOES-R Proving Ground Workshop

Final Thoughts and Concerns

- We need to verify GOES-R simulated imagery and products are ready for SAB operational use before launch.
- We need to Prepare our satellite analyst for future operations using GOES-R imagery
- We need to gain confidence from testing and preparation that imagery and products will meet our operational standards to produce products that satisfy our customer needs

- What is the general time frame for testing an individual product and/or imagery. We have heard various time periods.
- Once the concern is addressed from the GOES-R representative to the researcher, what will be the process from there and will we get to retest.

GOES-R Proving Ground Workshop – Boulder Colorado

Thank you!

For additional information please contact

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